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KNOWLEDGE ECONOMICS AND THE CHARACTERISTICS OF INNOVATIVE HUMAN CAPITAL DEVELOPMENT IN GEORGIA

Summary. *New aims and objectives were put forward as a result of human developments in XXI, which are based on fundamentally new kind of developments, characterized by changes of technological structures. The advantages of education and science fields have been identified. The role of an individual towards the society has been changed – he/she became a generator and initiator of innovational ideas and ensures transformation of knowledge into major economic factor. Professional knowledge and skills, human intelligence capabilities are not only his/her personal characteristics, it became national treasury and factor of its development.*

Key words: *knowledge, education, innovative economics, human capital, production factor.*

Introduction. Knowledge (innovative) economics represents final stage of world economics transformation. Traditional economy or pre-industrial era preceded industrial production, which on the other hand was replaced by post-industrial period and today resource capacious technologies are replaced by scientific technologies at micro as well as macro levels.

One of the perquisites of economical sustainable development is generating novel knowledge and human capital. It is obvious that knowledge and capital are mutually dependent categories: only highly qualified specialists have capacity of creating novel knowledge and effectively apply it to reality. Hence, human capital has one of the most important roles in innovative economics of human capital among the other factors, which affect on economical growth, as high level of human capital development determines high level of creativity, which on the other hand is important for creation of novel knowledge (innovation).

Knowledge economics and human resources. The abilities of a country to hold a leading role in global competitive environment is largely determined by the level of human capital in its society. Permanent care of a human being, a consumer, is provided by the highest income to satisfy his/her needs. In order to achieve success, various methods were used in different eras, which were affected by the ideologies ruling the specific historical moments of the respective eras. In modern environment, the perquisite for success became competitive knowledge, which cannot be compared to any of economic areas in terms of the degree of competitiveness. It shall be taken into consideration that in the constantly changing environment, maintaining competitiveness at the global level requires innovative human capital, which represents the most active part of the society and it will make it possible to transform the knowledge into economic resource. Therefore, economic development of a country shall depend on the methodology of social development, which gives an opportunity to take the characteristics of innovative human capital of this society into account while drawing out innovative human capital management strategy.

Knowledge economics increasingly influences on the state economic succession. Though within the previous economic relationships, state prosperity was determined by extensive type of conduction, since late middle ages, the perquisite for economic succession became making labor work cheaper as a result of implementation of novel technologies. Therefore, human being, as a knowledge factory became a generator of novel technologies, innovative ideas. With the help of neoclassical theory, it can be said that economic growth represents the outcome of increasing labor workforce along with technological processes reducing the expenses. Taking into consideration knowledge economics, economic growth depend on human factors, which participates in production process in the form of constantly renewing knowledge capital. Conceptual basis of knowledge economics in post-industrial society represents knowledge and human capital, functional characteristics of which are based on two fundamental grounds: 1. Knowledge represents one of the major factor for production and possesses value; 2. Knowledge and human capital is a production capital. The more and novel knowledge is accumulated and more complies with the requirements existed on the market, the higher indicator of evaluated human knowledge exists. [Julakidze, 2016:1].

The relation between economic growth and education has already been investigated among scientific circles abroad. Angus Madison (the author of "Dynamic Forces in Capitalist Development) found out that the increasing investments in education for 1% increases gross domestic product with 0.35%, and the organization of economic cooperation, on the basis of the facts analyzed by him, shows that increasing the statistical duration of teaching for one-year results in the increase of GDP with 3-6%.

On the basis of the information provided by the same organization, 32% of the population possess higher education. However, major part of this data is taken by the developing countries. Developed countries are leaders in terms of education percentage share in Gross Domestic Product (average 5.75%) and in terms of expenses directed to higher education (average 10 655 Dollars per student a year) [Report, 2016: 9].

Given facts prove the opinion that the ore educated people exist in a country, higher level of economic condition exist in these countries. The number of the examples, that prove direct relation between technological innovations, developed through scientific researches, and the efficiency of economic decisions, took on the basis of given researches, strongly proves the provision that the science integrates with the economics and scientific knowledge generates additional value to the bigger extent compared to other production factors. Scientific knowledge, which is acquired through researches and analysis, is applied to the creation of material as well as non-material productions. Thus, education and scientific knowledge created additional value and increases productive assets. Specific advantage of any economical entity exists in its innovative activity, an opportunity to generate novel knowledge and employ it through novel methods.

Physical and spiritual firmness depends on various social factors – health, cultural and rest, feeding levels. Therefore, the scientists of various countries reached the conclusion that except the investments in education, it is important to draw adequate attention to funding human capital, which will definitely reflect on the productivity and the increased efficiency of production. A wide range of approaches for study of human capital.

All these approaches can be attributed to two directions: first – these are the works related to the increase of human conditions, the second – the works, which focus on human perfection, his/her intellectual and physical characteristics. A group of theories, which covers the analysis of improving human conditions, can be attributed to the coefficient of life quality (A. Campbell, S. Coul, I. Milze and others) and population quality (I. Pubin, A. Pechei and others).

And the groups of theories, which aims human characteristics perfection can be attributed to "Human Potential" and "Human Capital" concepts. All the theories, which exists in scientific literature and is based on "Human Capital" concept may be divided into two groups: 1) Economical Approach – which depends on human capital index and human development research concepts;

and 2) sociological approach – which describes human capital as a characteristic of separate individual group, which characterizes the level of social development and the ones who support methodological individualism, which considers human capital in close relation to the individual. [Report, 2016: 8].

World human capital is a part of national wealth and represents its 2/3. Development paradigm of human capital of USA and leading European countries has been developed on the basis theory and practice which is currently being refined. In 2012, the value of USA human capital equaled to 97 Trillion USD, which is 78% of national wealth of the country. 26% of human capital of the world is attributed to USA (its share in world economics is 21%), Russia – 8%, China 7%, Brazil and India 2-2%, Europe 67%. This indicator for Georgia represents 30%, Russia – 50%. For most of the countries, human capital is above half of the country's wealth (except OPEC ones).

Major basis of human capital development is education. Major criteria of human capital development are the expenses in education. In overall, investments in human capital affects on the prospects of country's development.

The share of the expenses on education is determined as the overall amount spent on education by state and private sector [3 Gelashvili M… 2016:57]

Georgia in Global index of innovations. In the direction of researches and developments in the country, world, in order to show world tendencies, Global Index of Innovations is published annually since 2012. With the help of given index, it is possible to demonstrate the mechanisms, with the help of which, long term growth, productivity and increase of workplaces are possible. This helps and advices the countries what necessary conditions are needed to develop the innovations. Each country is assessed on the basis of seven criteria:

- Institutes;
- Human capital and research;
- Infrastructure (telecommunication infrastructure and ecological sustainability);
- Market sophistication (market conditions and necessary amount of market operations);
- Business sophistication (to what extent do the companies support innovations);
- knowledge and technology outputs (the role of knowledge and technology in the creation of inventions and innovations);
- creative outputs (the role of creativity in the innovations).

In the Global Index of Innovations, which was published with the cooperation of Cornel University and World Organization of Intellectual Property (UN Agency), in terms of innovation developments, Georgia has become better by 2016. To this point, major achievements of the country are institutional structure an regulating policy. However, major weaknesses are considered to be lack of support educational and research directions by

government and private sector and limited use of innovations. On the bases of the data in 2016, Georgia got 33.9 points (out of 100), there was a slight increase (33.8). compared to 2015, Georgia has been promoted with 9 positions, it takes 64 place out of 128 countries. Despite these positive changes, the country has lowest results in terms of human capital, business development and creativity production components. Apart from mentioned, among post Soviet union cointries, Georgia has lower results that Russia, Moldova, Ukraine and Armenia. In institutional arrangement, Georgia has 69.2 points, which assesses political stability of the country, efficiency of management, business environment and regulations. The worst indicators have human capital and education. In this category, the country has only 23.2 points out of 100 and took 91 place in the rating. Similar situation exists in the component of support of innovations from private sector: Georgia took 26.5 and took 90th place. [statistical collection 2016: 21]

Compared to the results of 2015, it is clear that the condition has become worse mostly in the component where Georgia has low indicators. This is supported by reduced points in business development and human capital – research components. This does not apply to creative production, where the country increased its condition with 1.6 and the position went up with 23. However, despite this, the country still has modest results in this component, which is mainly determined by creation of online productions and lack of using informational-communication technologies by the private sector. Georgia has moderate indicators in terms of market development (44.3 points) and infrastructure (41.7) criteria.

Table 3.

Global Index of Innovations

years	Institutions	human capital and	infrastructure	market development	business development	knowledge and technologies	creativity production
2015	68,2	23,6	36,5	52,8	28	26,6	25
2016	69,2	23,2	41,7	44,3	26,5	26,8	26,6

Innovations index covers two sub-indexes: innovation input and innovational production, which identifies innovative efficiency coefficient. Sub-index of innovation input is an average point of first five categories (institutions, human capital/research, infrastructure, market and business development). Innovative production is average index of last two indicators (creative production and knowledge and technologyproduction). The efficiency coefficient of innovations are calculated with the relation of innovative products to the expenses. Its index varies between 0 – 1, where 1 is the best point.

In terms of innovative product criteria, Georgia takes 60th palce with 26.7 points; as for the innovations input, it takes 67th place with 41 points. Efficiency coefficient reached 0.7 points, with which it takes 67 place among 128 countries. Last year, this coefficient equaled to 0.6. there are weak and strong sides identified for each country. In terms of Georgia, strong sides were:

- Simplicity of business embarkment (6th place with 97.8 points)
- Rates (5th place with 95.7 points);
- Simplicity of obtaining credits (7th place with 85 points);
- Printing and publishing production(4th place with 83.2 points);
- Protection of interests of small shareholders (20th place with 68.3 points);
- The amount of direct investments from abroad with regard to GDP (10th place with 66.8 points);

The research compares Georgia to the countries with the similar income (low, medium). The report empnasizes that Georgia is one of the countries, the results of which are higher that this group countries.

Weak sides of the country refer to market and business development, as well as research and human capital. Specifically, Georgia showed low results in the following categories:

- The degree of universities business cooperation (177 place with 27.3 points);
- The expenses conducted to education (place 103 with 10.4 points)
- The expenses conducted for research and development (place 103 with 1.3 points)
- Trainings offered by the private companies to the staff (place 91 with 9.4 point).
- The place of first three universities of the country in the world ranking (0 points and last place with 56 countries).

According to the index, among post Soviet Union countries, Georgia takes 8th place. Along with three countries of Baltic region, better results have Russia, Moldova, Ukraine and Armenia. However, with regard to innovation efficiency, Georgia has better results compared to Russia and Lithuenia. In this component, better results had Moldova and Estonia, which implies to reasonable and effective spending of the money attributed to the development of innovations. With regard to institutional framework and infrastructure, Georgia has less result than Baltic countries only. With regard to any other components, Georgia is below to the first seven post Soviet Union countries except human capital and research categories, where Armenia has lower index than Georgia.

If we consider the results, Georgia needs encouragement of researches and innovations, implementation of innovative technologies in Education, activation of private sector within the use, creation and implementation of innovations.

Conclusion. With regard to human capital development, existing condition cannot provide development of new and existing industrial fields and sectors. It is necessary to create new policy of education system development which will provide adequate budgetary resourses. The models of funding education and science shall be considerably changed. Grant system shall be maintained byt direct funding models shloul be developed and refined. In addition, the share of higher education funding within GDP and budget should be equal to the ones existed in developed countries. At the same time, it is necessary to create

appropriate support strategy, which will give an opportunity to local producers and scientific institutions gain profit through collaboration and have access to additional resources for development.

The country has some important challenges, which should be solved in order to achieve progress in innovation development. The analysis of results showed that the results were reduced in the directions that were weaknesses in previous years. Specifically, the results vary within 20-30 points among the criteria of human capital and education, business development condition, knowledge and technological production. It is true that the country had good index in terms of institutional organization and regulating policy, but, economic development of the country, level of private sector development and scientific basis is still below the global tendencies.

In order to achieve progress, it is necessary to take efficient steps for the development of education and research. In addition, active participation of private business in this process is important, which is possible through conducting encouraging events for supporting business competitiveness and imprementing innovations.

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